

THE ANTI-AGING ARSENAL

For every different anti-aging theory embraced today, there are a myriad of treatments to accomplish the goal of helping clients look and feel younger. Products, equipment, regimens, and ingredients combine to offer medical spa clients a plethora of tools to combat the effects of aging—as well as to delay it in the first place.

In fact, while some in the field specialize in restorative anti-aging measures, devising equipment that delivers light therapies to diminish wrinkles or developing fillers that plump them out, others look to counter aging with preventive technologies.

We present below some opinions of anti-aging experts on a medley of approaches, both preventive and restorative, in the current anti-aging arsenal.

Natural Antioxidants

Two hot topics we are seeing more of in medical literature involve the key concepts of free-radical damage and inflammation. We're just beginning to realize how these processes, which occur in all cells and tissues damaged by a variety of causes, including aging, diseases (such as diabetes, heart disease, or stroke), infections, or traumatic injury, are involved in tissue damage and repair.

Free radicals are molecules that contain extremely high energy. Because they are so highly energized, they combine immediately with any cellular substance they touch. Reacting with this substance, they damage it and in the process create another extremely ener-

gized free radical. Similarly, the second free radical immediately reacts with the first cellular substance it touches, damages that substance, and creates another free radical. This cascade of biochemical reactions leaves a wake of injured tissue and provides a perpetual source of free radicals that create ongoing damage.

Most free radicals come from the interior of a cell, a consequence of using oxygen to create energy. There are also external sources of damaging free radicals, such as smoking, solar rays, pollution, and ozone. The skin is especially subject to free radical damage from the environment, as it is the body's first defense against external stressors.

Antioxidants are critically important because they combine with free radicals and prevent the series of biochemical reactions leading to repetitive and ongoing cellular damage. Antioxidants supplied by cells, such as superoxide dismutase, glutathione, and catalase, are termed intrinsic, and those provided from a source outside the cell are called extrinsic. Excellent antioxidants include vitamins C and E, as well as centella extract (also known as gotu kola). Combining certain antioxidants can also increase their effectiveness. Vitamins C and E, combined in a specific chemical way, are about four times as effective as vitamin C alone.



Experts agree that preventive as well as restorative techniques are important for anti-aging skincare.

In spite of antioxidant protection, some free-radical damage still occurs. A cell can only take a number of free-radical "hits"; when a critical amount of cellular damage occurs, the cell is unable to repair itself. The body recognizes the damaged cell via a number of chemical mediators and sends a message for the cell to be destroyed. Lytic chemicals bombard it until it dissolves, and the dissolved parts of the cell must be removed from the area so a new functioning cell can take its place. This is how inflammation occurs: The inflammatory proteins call in a host of phagocytic cells to clean up the area and remove the damaged tissue. Not only is damaged tissue destroyed and removed, but some of the surrounding healthy tissue also suffers the same fate. Although necessary, inflammation causes a halo, or penumbra, of damage around the original site. Scar tissue production accompanies any significant amount of inflammation.

Olive leaf is one of the newer excellent anti-inflammatories. In fact,

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Olive leaf extract is an excellent anti-inflammatory agent.



pleasing) way. As each cell reaches a critical point of damage and is no longer functional, the body sets up a series of inflammatory reactions to remove it. Some of the surrounding healthy cells are also damaged during the inflammatory process. When critical damage occurs, the damaged cell and some nearby healthy cells are removed. This results in scarring (wrinkling).

The above principles illustrate that preventive skincare technologies are preferable to restorative techniques. Once inflammatory processes have been completed and

they are not appropriate for either darker skin types or nonfacial skin.

Nonablative facial rejuvenation modalities—such as IPL, radio frequency, and 1319 or 1320 nm wavelengths—spare the epidermis by targeting specific cosmetic defects, such as telangiectasias and pigmented lesions. These modalities require multiple treatments, and the results are sometimes subtle and unpredictable. Since non-ablative rejuvenation modalities rely on selective photothermolysis to target specific cosmetic defects or chromophores, they must be used in combination for optimal results.

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when olive leaf extract is added to the combination of vitamins C and E, the anti-inflammatory properties increase about 300 to 400 times from the C and E combination alone. Although many proteins in olive leaf are beneficial, oleuropein has the most potent anti-inflammatory activity. Oleuropein is found in olive leaves and, to some extent, in stems. (Very little oleuropein or other active anti-inflammatory agents are found in olive oil.)

Let's use the example of aging skin to illustrate specifically what happens with free-radical damage and inflammation. As skin cells age, they are subject to accumulated free-radical damage from a number of sources, including internal cellular metabolism, solar rays, and environmental damage. When free-radical damage occurs, the cells function improperly. If their function is to produce collagen, they begin producing defective collagen that cannot support the structure of the skin in a healthy (and esthetically

scarring results, restoration of healthy tissue is difficult. However, since the entire sequence of biochemical reactions from free-radical damage through inflammation and scarring are found in every tissue of the body, we require products that address these issues at every level. Preventive and restorative techniques are both necessary in anti-aging skincare. —Charlene DeHaven, M.D., F.A.C.E.P.

Light-based Treatment Alternatives

Until recently, light-based treatments were limited to either ablative resurfacing or non-ablative facial rejuvenation. Ablative resurfacing with either CO₂ or erbium lasers can offer dramatic improvement but may require up to two weeks healing time with erythema—a reddened appearance to the skin—that may persist for six to eight weeks. These procedures carry the risk of hyperpigmentation, hypopigmentation, and scarring. Also,

A new option is fractional photothermolysis, or Fraxel Laser Treatment, which was developed by Reliant Technologies. This technology bridges the gap between ablative and nonablative rejuvenation and gives patients the best of both worlds: safe, effective resurfacing with little or no downtime. This process selectively targets 20 to 25 percent of the skin's surface with microscopic thermal zones, which are separated by untreated tissue. The untreated skin provides healing cells to the treated areas so that the skin surface is completely healed within 24 hours.

At the Ageless MedSpa, we're achieving results comparable to ablative resurfacing in the treatment of periorbital wrinkles, perioral wrinkles, and pigmented lesions. Additionally, we are noticing a dramatic overall improvement in the quality and texture of the skin. We recommend a series of four treatments

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for optimal results. This is an exciting technology, as we're finding improvements in other applications, such as tissue tightening and scar revision, as well.—*Sharon McQuillan, M.D.*

Your Epidermis Is Showing

Sun damage, premature aging, and wrinkling affect millions of men and women. Earlier laser treatments were effective in treating some of these problems, but the treatments were painful, required general anesthesia, and involved a significant recovery period characterized by redness and blistering. A new technology called elos (electrical optical synergy) combines light energy with radio frequency energy to return radiance and vitality to weathered and fatigued skin. Over a series of up to five 30-minute sessions, brown and red discolorations of the face, neck, chest, and body are reduced and eliminated.

The elos-based procedures are among the most requested treatments that we perform. Besides the appeal of no down time and no recovery period, our patients are thrilled by the ease, reliability, and comfort with which their complexions are improved. For a patient who wants to reduce lines and wrinkles without surgery, shrink pore size, or eliminate discoloration and unevenness of the skin, these procedures represent fantastic options.

Over the last three years, I have used the elos-based procedures to take 20 years off the appearance of old-looking necks and chests. Elos also safely stimulates collagen production; we've been particularly successful in reducing pucker lines around the mouth, softening crow's feet around the eyes, and smoothing cheeks—without injections—using a combination of radio frequency and laser energies delivered by the Polaris WR system.

Wearing sunscreen and not smoking are the best defenses against prematurely aging skin, but these newer treatment options offer us viable alternatives.—*Kenneth Jesser, M.D.*

Sun Protection

The causes of aging skin vary. As a person gets older, his or her oil production drops and the skin is less able to retain moisture, resulting in surface dryness and the appearance of fine lines and wrinkles. A reduction in hormone production as one ages weakens the skin's support system, resulting in collagen breakdowns. But surprisingly, the vast majority (90 percent) of the causes of aging are a direct result of environmental factors—especially the sun. Environmental factors cause oxidation, which is, basically, aging.

Thankfully, there are skincare ingredients, such as titanium dioxide in sunscreens, that can effectively prevent or retard these factors to preserve youthful skin. Vitamin C is an effective antioxidant, as is CoQ10, which repairs and prevents cellular breakdown. The polyphenols found in green tea extracts have proven to be potent antioxidants as well. These materials encourage natural collagen production and minimize the breakdown of existing tissues. With increased exposure to the sun during the summer, vitamin C supplements can help prevent skin oxidation, restore lost collagen, prevent the formation of fine lines, and help suppress the production of melanin, which causes skin pigmentation. The best news: Vitamin C neutralizes free radicals, the unstable skin-sabotaging molecules triggered by sun exposure.—*Sylvia Khorenian, M.D.*

CONTRIBUTORS

Charlene DeHaven, M.D., F.A.C.E.P., is board-certified in internal, emergency, and anti-aging medicine. She founded one of the first anti-aging medical practices in the country, emphasizing preventive medicine, preventive cardiology, and modification of the effects of aging. She now serves as clinical director for cosmeceutical developer IS Clinical/Innovative Skincare.

Sharon McQuillan, M.D., specializes in both esthetic and anti-aging medicine. She

co-owns and operates the Ageless MedSpa at Kenneth's in Columbus, OH, offering anti-aging and esthetic therapies. She is also founder of The Ageless Aesthetic Institute, a nonprofit organization also based in Columbus, OH, whose mission is to educate medical professionals in esthetic medicine.

Kenneth Jesser, M.D., has postgraduate training and certification in phlebology, laser and intense pulsed light photorejuvenation, and cosmetic injectables. In 2001, he co-founded

About Face Medical Aesthetics @ California Vein Specialists, a physician training site for elos procedures, in Palm Desert, CA.

Sylvia Khorenian, M.D., practices general and cosmetic dermatology as well as laser surgery in New York and New Jersey. Her areas of expertise include fillers, chemical peels, and anti-aging skincare products. A published author, Khorenian has taught professional workshops and seminars. She is a consultant for 3Lab skincare.—*Jenny Sherman*